

# Psychophysiological modifications in an assault infantry manoeuvre using a chemical, biological, radiological and nuclear personal protective equipment

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## Abstract

**Introduction** The study of the psychophysiological response during combat actions has been poorly researched despite its importance for warfighter training and specific instruction. The aim of the present investigation was to analyse the effect of chemical, biological, radiological and nuclear personal protective equipment (PPE) on the psychophysiological response, mechanical and physical load and fine motor skills of professional soldiers in an endurance infantry manoeuvre. **Methods** 16 soldiers conducted an assault manoeuvre with and without the PEE in separate days. We analysed before and after the manoeuvre the psychophysiological response, fine motor skills, shooting test accuracy and anxiety state. **Results** The use of PPE produced significantly higher ( $p < 0.05$ ) stress, fatigue, temperature, HR, somatic anxiety and time in middle and high HR zones and significantly lower values in speed average and maximum speed. These findings can be used to improve the training and specific instruction for professionals who require the use of PPE equipment. **Conclusion** The use of the PPE suit in an assault manoeuvre produces a decrease in the speed of movement, an increase in HR, body temperature, somatic anxiety and subjective perception of effort.

**Keywords:** warfighter, PPE, psychophysiological response, combat training